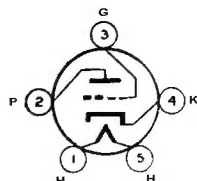


# RCA-56

## SUPER-TRIODE AMPLIFIER DETECTOR



The 56 is a three-electrode tube of the heater-cathode type recommended for use as detector, amplifier, or oscillator in a-c receivers designed for it. This tube is characterized by its high mutual conductance, and its comparatively high amplification factor. The 56 is useful in resistance-coupled audio-frequency amplifiers.

### CHARACTERISTICS

HEATER VOLTAGE (A. C. or D. C.)	2.5	Volts
HEATER CURRENT	1.0	Ampere
PLATE VOLTAGE	100 250 max.	Volts
GRID VOLTAGE*	-5 -13.5	Volts
PLATE CURRENT	2.5 5	Milliamperes
PLATE RESISTANCE	12000 9500	Ohms
AMPLIFICATION FACTOR	13.8 13.8	
TRANSCONDUCTANCE	1150 1450	Micromhos
GRID-PLATE CAPACITANCE	3.2	$\mu\text{f}$
GRID-CATHODE CAPACITANCE	3.2	$\mu\text{f}$
PLATE-CATHODE CAPACITANCE	2.2	$\mu\text{f}$
BULB		ST-12
BASE		Small 5-Pin

\* If a grid-coupling resistor is used, its maximum value should not exceed 1.0 megohm.

### INSTALLATION

The base pins of the 56 fit the standard five-contact socket which may be installed to hold the tube in any position.

The bulb of this tube will become very hot under certain conditions of operation. Sufficient ventilation should be provided to prevent overheating.

The heater is designed to operate at 2.5 volts. The transformer winding supplying the heater circuit should be designed to operate the heater at this recommended value for full-load operating conditions at average line voltage.

The cathode should preferably be connected directly to a mid-tap on the heater winding or to a center-tapped resistor across the heater winding. If this practice is not followed, the potential difference should be kept as low as possible.

### APPLICATION

As an amplifier, the 56 is applicable either to radio-frequency or audio-frequency circuits. Recommended operating conditions for service using transformer coupling are given under CHARACTERISTICS. For operation as a resistance-coupled amplifier, refer to the Resistance-Coupled Amplifier Section.

As a detector, the 56 may be of the grid leak and condenser or grid-bias type. The plate voltage for the grid leak and condenser method should be about 45 volts. A grid leak of from 1 to 5 megohms with a grid condenser of 0.00025  $\mu\text{f}$  is satisfactory. For the grid-bias method of detection, a plate-supply voltage of 250 volts may be used together with a negative grid-bias voltage of approximately 20 volts. The plate current should be adjusted to 0.2 milliamperes, with no input signal voltage. The grid-bias voltage may be supplied from the voltage drop in a resistor between cathode and ground. The value of this self-bias resistor is not critical, 30000 to 150000 ohms being suitable. The higher value will permit the application of a larger input signal.

A plate family for this type is given under type 76.